

ORIGINAL ARTICLES

TYPHOID FEVER.

A Résumé of Present-Day Knowledge.

By W. W. BEHLOW, M.D.

Typhoid fever is a very important disease both from the sanitary and from the economic viewpoint. It stands fourth in the list of mortality tables in the United States. It is one of the disgraces to our civilization. In six years it kills more people than were killed on both sides during the Civil War. This disease occurs both in epidemic and endemic forms, in fact it may be regarded as pandemic. While most frequent from July to October, it occurs at all times of the year. It is more prevalent in country districts. All ages, both sexes, rich and poor are attacked.

Infection. The cause of the disease, the bacillus typhosis, probably always enters the body by the mouth. Entering the intestine it finds its way to the blood and thus this disease is a true bacteraemia. The bacillus leaves the body through the urine and feces, and infrequently by means of the sputum and other discharges. In the urine, the organism is found most frequently from the second to the fifth week. It appears early in the feces, sometimes before the onset of fever.

The bacilli appear in the blood early in the disease and blood cultures taken during the first week of the fever will usually show the organism. Kayser obtained the bacillus in 90% of his cases in the first week.

Bacillus carriers are one of the great problems of this disease. Rosenau states that 4% of all typhoid cases continue to shed the bacilli in feces and urine during and after convalescence.

Typhoid is spread by direct and indirect contact. Milk, water, and other foods, are common sources of infection. Flies, soiled linen, and "contacts" add their share to the spreading of the infection.

Prophylaxis. By the introduction of dead typhoid bacilli into the subcutaneous tissues, an active immunity may be induced. How long this immunity lasts it is impossible to state but the duration is probably two to three years according to the dosage of vaccine employed.

Symptoms. The period of incubation is from eight to twenty-five days. The onset is usually slow and the patient complains of inability to do his accustomed work. Loss of appetite, headache, and bronchitis are frequent early symptoms. The onset may be very abrupt, and the disease may be ushered in by chills and moderately high fever. From the time the patient goes to bed, the definite onset of the disease is usually dated. There are certain exceptions to this general rule. During the first week the fever usually shows a gradual rise but it is important to realize that this is the typical case. More frequently, the patient is not seen until the disease has progressed several days. The pulse is moderately rapid but in proportion to the temperature it is relatively slow. Toward the end of the week the spleen is palpable and the skin eruption appears. These rose spots appear in crops. Some patients never show any spots while others may be covered with the erup-

tion. Examination of the blood shows a leukopenia and a slight anemia.

During the second week the patient is really sick. His temperature remains high with little or no morning remission. His expression is dull and heavy. The tongue becomes covered with a thick brownish coat and in the severe cases may be dry. During this time there is apt to be muttering delirium. The abdominal signs are very important, as diarrhea, tympanites, and some tenderness may occur and require the careful attention of the physician. The patient now shows some loss of flesh.

In the usual case, the third week brings about slight improvement in the patient's condition. The temperature begins to show morning remissions. The evening rise becomes less as the days go by. The abdomen needs careful observation at this time as hemorrhage and perforation are most frequent during this period.

After the third week convalescence may be said to begin. Appetite is returning, the mental condition is brighter, the temperature gradually returns to normal, and the abdominal signs disappear. This description is true for the normal case of typhoid. The severer cases may terminate before this time. In others, the onset may be more gradual and the duration of the height of the disease may be considerably longer.

Complications. Recrudescence and relapse are true complications. Tympanites may be a most serious trouble and may require the best efforts of the physician to combat it. Pleurisy, otitis media, periostitis, phlebitis, myocarditis, and furunculosis are frequently found in typhoid patients. Pneumonia is not uncommon. The most serious of all the complications are hemorrhage and perforation. As it is not the purpose of this paper to thoroughly describe each condition, it will be sufficient merely to mention the most important of the complications.

Treatment. Rest in bed, careful diet and proper nursing are the essentials. Too much nursing is worse than none at all. Many a patient has had his chances of recovery lessened by the well meant attentions of an enthusiastic nurse. A typhoid patient needs all the sleep that he can get. He needs plenty of fluids. The bowels should be carefully watched and an enema given at least every second day. Hydrotherapy is an important part of typhoid treatment. Baths are not indicated merely to reduce temperature. The fact that mental signs are associated with high temperature is the important thing to remember. Hydrotherapy is indicated when the toxemia causes delirium in addition to temperature. Of course the patient should receive a cleansing sponge each day but the idea of giving baths whenever the temperature reaches a certain point should be forgotten.

Diet. Each patient must be dieted according to his needs. Usually the patient cannot take much food during the height of the disease. His digestive powers are far below par. A light diet of milk, gruels, and broths with sufficient lactose

added to the milk for caloric purposes, will take care of the patient during the worst stage of the fever. As time goes on, any food which will meet the following requirements may be given: nutritious but not bulky; easily digestible; non-irritating to the intestine; quantity commensurate to digestive power; adapted to patient's condition; palatable and varied.

The advantages of a liberal diet are that nutrition is better maintained, strength is better maintained, convalescence is shorter, distention is uncommon, and patients suffer less. A diet composed almost wholly of milk is the cause of abdominal distention in a large number of the cases of typhoid.

Of drugs, there is only one that should be used as a routine, namely, hexamethylenamine, and care should be exercised in its exhibition as it may cause hematuria. If the latter does occur, the drug should be omitted for a few days. This drug is given for one purpose only, the destruction of bacilli in the urine. Other drugs are ordered as symptoms require their use.

Vaccine therapy. This form of treatment has many advocates. Others claim that it does no good. The proper use of vaccines does no harm. The best results are obtained if the vaccine is used early in the disease. Late in the disease vaccine is of doubtful value. The usual dosage is 50,000,000 according to Krumbhaar and Richardson.¹ This is repeated in three day intervals. No set rule as to dosage can be made.

Laboratory tests. The blood culture method has been mentioned. The Widal test is valuable and if not positive the first time should be repeated frequently until it becomes positive or it becomes certain that the patient has not typhoid fever.

Conclusions. Typhoid is a filth disease. It can be prevented by sanitation and by the use of preventive vaccine. Careful nursing is important in the treatment of the disease. Vaccines are valuable for preventive measures. Their value as a curative agent is still questionable. A reasonable diet should be prescribed. Care should be taken to prevent spread of the infection. Education of the public will diminish the morbidity statistics of typhoid fever.

1. Krumbhaar and Richardson. Amer. Jour. of Med. Sc., March, cxlix, No. 3.

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STATISTICS OF MY NEW ADVANCEMENT OPERATION WITH REPORT OF CASES.*

By RODERIC O'CONNOR, M. D., Oakland.

I do not intend to take up valuable time by giving a description of the operation. This has appeared in the journals on several occasions—the last and most complete being in the *Ophthalmic Record* for December 1914. For the benefit of those who may not have seen any such account I will say that the object of the method is to avoid constriction of tissues by sutures and tension on sutures. This is done by looping marginal strips of tendon so as to form a double half hitch about a strand of catgut (20 or 40 day). This leaves a central tongue which is slack the amount of the marginal shortening. This central tongue can then be tucked, resected or actually advanced an amount equal to the marginal shortening and the suture holding it be free from tension during the healing process. In view of the absence of constriction and tension I claim the method to be mechanically and surgically correct in principle.

My claim in this operation is that if it is properly done and especially if the retaining suture is not tied so tightly as to cause constriction and sloughing there will be no slipping at the point of operation and that it will be safe during the entire healing process. Of course there may be later on a loss in effect due to remote causes or to a continuation of the causal condition.

CASES.

(1) This was to determine the practicability of the technic and was on a blind eye exotropic about 15 degrees. Using a No. 3 gut a complete immediate effect was secured which had diminished but very little two years later.

(2) This was one of about 20 degrees alternating exotropia in which by two operations five months apart a perfect result was secured. In each operation No. 3 gut was used.

(3) One of 22 degrees esotropia in which about 15 degrees of permanent result was secured using No. 3 gut. Second operation refused, being satisfied with the cosmetic result from the first.

(4) One of 15 degrees esotropia in which a complete result was secured in one operation using No. 3 gut.

(5) One of about 35 degrees esotropia in which three weeks after operation there was lateral orthophoria and binocular superposition from one operation using No. 4 gut.

(6) One of 50 degrees esotropia in which by a double externus shortening at one sitting was secured about 40 degrees of correction; No. 4 gut was used.

(7) One of 50-60 degrees exotropia in which parallelism of the visual axes was secured from one operation using No. 4 gut.

(8) One of 18 degrees esotropia in which the immediate effect was only about 10 degrees in spite of using No. 4 gut. Three days later a gonococcal conjunctivitis developed and ruined any chance so that the cause of the poor immediate effect will never be known.

(9) One of 20 degrees esotropia in which an immediate effect of at least 10 degrees over-correction

* Read before the Third Annual Meeting of the Pacific Coast Oto-Ophthalmological Society, San Francisco, June, 1915.